

## Information about Safety Footwear

People are more inclined to wear protective equipment if it is comfortable and suited to their work. There have been a number of questions recently about the selection and fit of safety footwear at JLab. Here is some information you may find useful.

Jefferson Lab has a new safety shoe (and boot) vendor, **Veterans' Shoes**. He is eager to meet the needs of JLab staff. He recognizes that a couple of minutes of limited walking aren't always adequate to verify that shoes or boots will be comfortable in actual use. Because of that, you have some new options for ensuring you get comfortable, well-fitting footwear.

- You may take the prospective shoes inside the ARC Building or to the VARC Building (the vendor parks at the ARC loading dock), put them on, and get as much walking time on the carpeted floors as you need to evaluate fit and comfort during the time the vendor is on site – typically from 2:00 until 4:00 pm.
- You may take them home and wear them on carpeted floors for an extended period. You may bring them back if you are not satisfied – as long as the shoe soles are not marred (i.e. by concrete, grass, dirt, etc.).

If you cannot find a properly fitting shoe from the vendor's inventory, you have some options.

- If you have a foot condition that necessitates a special shoe, ask your podiatrist or physician for a written instruction for the shoe type or feature you need. If our vendor cannot obtain the correct shoe, a Purchase Request may be submitted for another source for your footwear.
- You may consult with Dr. Chandler, the JLab Medical Director, about your condition and footwear needs.

### Other questions:

**Q:** Are non-conductive, safety-toe shoes available for those who do electrical work?

**A:** Absolutely. The safety footwear industry often calls this type of footwear **Electrical Hazard (EH) Shoes** or non-conductive. Our vendor has a selection from which to choose. Those who need EH shoes use the normal e-commerce process for safety footwear.

**Q:** How do we make certain that electro-statically-dissipative (**ED or ESD**) footwear is not issued inadvertently?

**A:** These shoes are intended for people who work with equipment or materials where a discharge or spark of static electricity could be dangerous or destructive. At JLab ESD shoes are only available to personnel who should be wearing them. Our procedures require a Purchase Requisition submitted by the employee's supervisor

for ED footwear. At each site visit, Procurement provides our vendor a list of those authorized to select an ED or ESD shoe. Supervisors and employees should consult with their EH&S staff if they are uncertain about the suitability of ESD footwear.

**Q:** I understand that NFPA 70E may require that electrical workers have leather shoes. Are these available, and does our purchase cost limit cover these?

**A:** The Electrical Hazard shoes that the vendor carries are leather, meet the requirements of the ANSI Standard (which is cited by 70E), and are within the cost allowances.

## Recommendations for Selecting Footwear that Fits Well

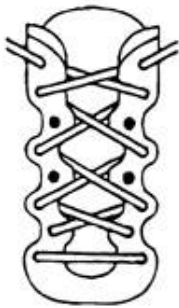
Here are some suggestions on proper shoe fit from the American Academy of Orthopaedic Surgeons, the American Orthopaedic Foot & Ankle Society, the National Shoe Retailers Association, and the Pedorthic Footwear Association. Use this guide when you shop for shoes:

- **Sizes vary among shoe brands and styles.** Don't select shoes by the size marked inside the shoe. Judge the shoe by how it fits on your foot.
- **Have your feet measured regularly.** The size of your feet changes – usually increases – as you grow older.
- **Have BOTH feet measured.** Most people have one foot larger than the other. Fit to the largest foot, but try on both shoes.
- **Fit at the end of the day** when your feet are largest.
- **Select a shoe that conforms** as nearly as possible to the shape of your foot.
- **Stand during the fitting process**, and check that there is adequate space ( $\frac{3}{8}$ " to  $\frac{1}{2}$ ") for your longest toe at the end of each shoe.
- When the shoe is on your foot, you should be **able to freely wiggle all of your toes**.
- Make sure the **ball of your foot fits comfortably into the widest part** (ball pocket) of the shoe.
- **Your heel should fit comfortably** in the shoe with a minimum amount of slippage.
- **Don't purchase shoes that feel too tight**, expecting them to "stretch to fit."
- **Walk in the shoe** to make sure it fits and feels right!

## Lacing Techniques for Proper Shoe Fit

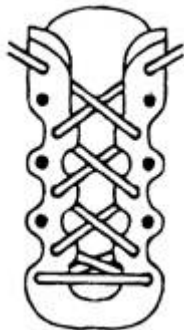
Certain lacing techniques for shoes can prevent injuries, alleviate pain, relieve foot problems, as well as optimize comfort. The American Orthopaedic Foot and Ankle Society urges individuals to follow these general lacing tips. Individuals with specific foot problems should follow these lacing techniques to get a good fit with their shoe:

- Loosen the laces as you slip into the shoes. This prevents unnecessary stress on the eyelets (small holes for the lace) and the backs of the shoes.
- Always begin lacing shoes at the eyelets closest to your toes, and pull the laces of one set of eyelets at a time to tighten. This provides for a comfortable shoe fit.
- When buying shoes, remember that shoes with a larger number of eyelets will make it easier to adjust laces for a custom fit.
- The conventional method of lacing, crisscross to the top of the shoe, works best for the majority of people.



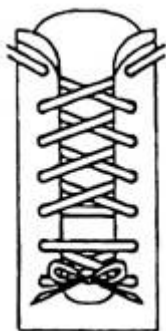
### **Narrow Feet**

Use the eyelets farthest from the tongue of the shoes. It will bring up the side of the shoe.



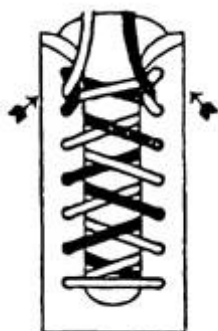
### **Wide Feet**

Use the eyelets closest to the tongue of the shoe. This technique gives the foot more space.



### **Narrow Heel and Wide Forefoot**

Use two laces. Thread through the top half of the eyelets and the other lace through the bottom half of the eyelets. The lace closest to the heel (top eyelets) should be tied more tightly than the other lace closest to the toes (bottom eyelets).









### **Heel Problems**

Use every eyelet, making sure that the area closest to the heel is tied tightly while less tension is used near the toes. When you have reached the next to last eyelet on each side, thread the lace through the top eyelet, making a small loop. Then, thread the opposite lace through each loop before tying it.

## What symbols will be on safety footwear?

The following symbols, or markings, help you determine which footwear is appropriate for the job.

Selection of Safety Footwear		
Marking	Criteria	Use
	Green triangle footwear has sole puncture protection with a Grade 1 protective toe (withstand impact up to 125 joules).	Any industrial or heavy work environment, including construction, where sharp objects are present (such as nails).
	Yellow triangle footwear has sole puncture protection and Grade 2 protective toe (withstand impact up to 90 joules)	Light industrial work environments that need both puncture and toe protection.
	White rectangle with orange Greek letter "omega" footwear has soles that provide electric shock resistance.	Any industrial environment where accidental contact with live electrical conductors can occur. (REMEMBER: Electric shock resistance is greatly reduced by wet conditions and with wear)
	Yellow Rectangle with green letters "SD" and grounding symbol footwear has soles that are static dissipative.	Any industrial environment where a static discharge can be a hazard for workers or equipment. Each shoe has a static-dissipative inner sole and outer sole which provides continuous electric contact of the foot to ground, as required by ESD standards.
	Red rectangle with black letter "C" and grounding symbol footwear has soles that are electrically conductive.	For any industrial environment where low-power electrical charges can be a hazard for workers or equipment.
	White label with green fir tree symbol footwear provides protection when using chainsaws.	For forestry workers and others who work with or around hand-held chainsaws and other cutting tools.

*As of March 2005, the ASTM F2413 standard superseded the ANSI Z41 standard for protective footwear. Manufacturers and distributors will implement a "running change" to their inventory from the ANSI Z41 labeled footwear. Because there is no change in the protocol, the ASTM F2413 standard does not require that the change from ANSI to ASTM labeled footwear occur in a specific time period.*